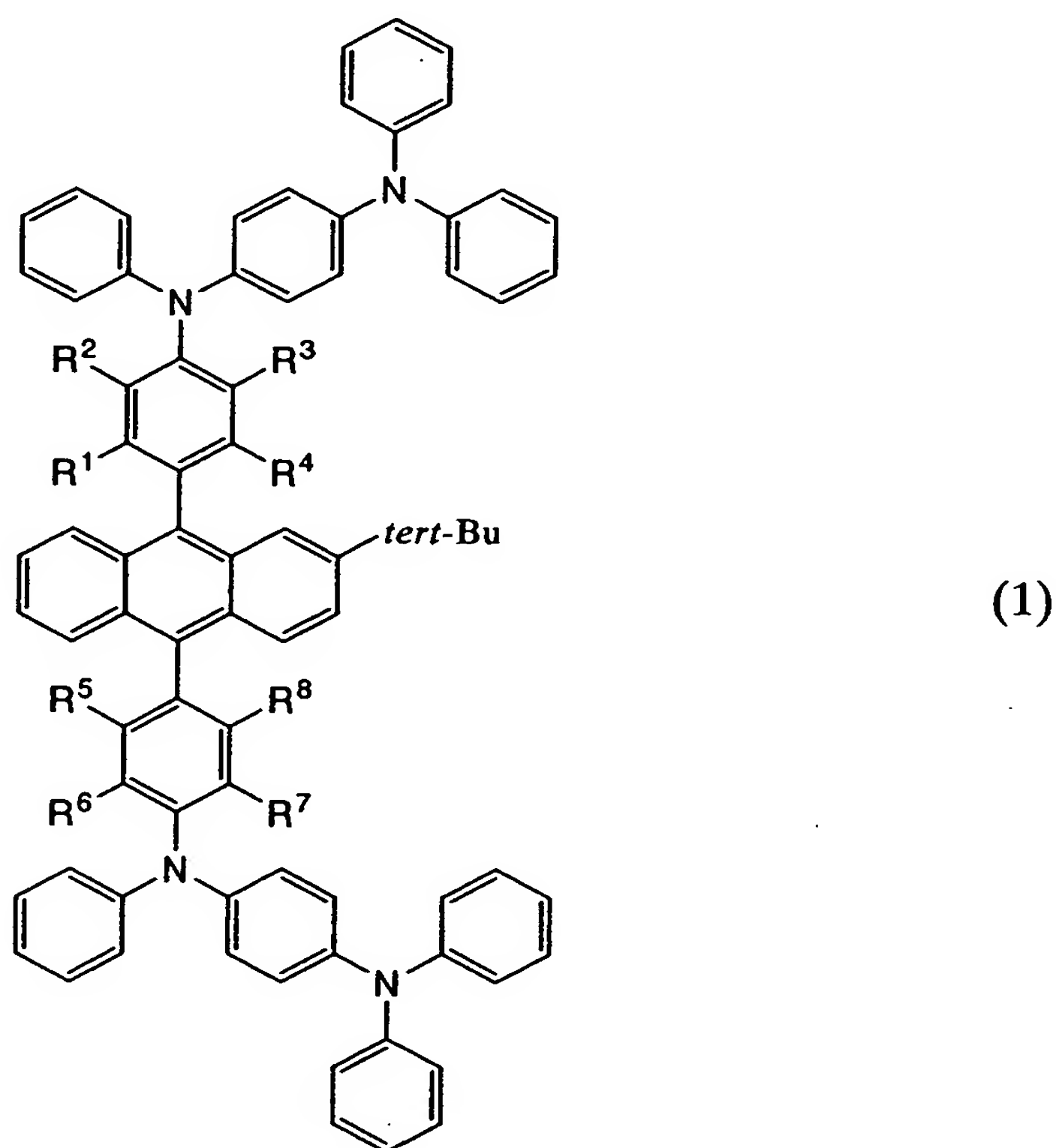


## CLAIMS

1. A light-emitting element comprising:  
 a first electrode and a second electrode,  
 5 a first layer and a second layer formed between the first electrode and the second electrode,  
 wherein the first layer contains an anthracene derivative represented by a general formula (1) and a substance that shows electron acceptability to the anthracene derivative,  
 10 wherein the second layer contains a light emitting substance,



- wherein  $R^1$  to  $R^8$  are individually any one of hydrogen and an alkyl  
 15 group having 1 to 4 carbon atoms, or  $R^1$  and  $R^2$ ,  $R^3$  and  $R^4$ ,  $R^5$  and  $R^6$ , and  $R^7$

and  $R^8$  are individually bonded to from an aromatic ring,

wherein the bond of  $R^1$  and  $R^2$ , the bond of  $R^3$  and  $R^4$ , the bond of  $R^5$  and  $R^6$ , and the bond of  $R^7$  and  $R^8$  are independent of one another.

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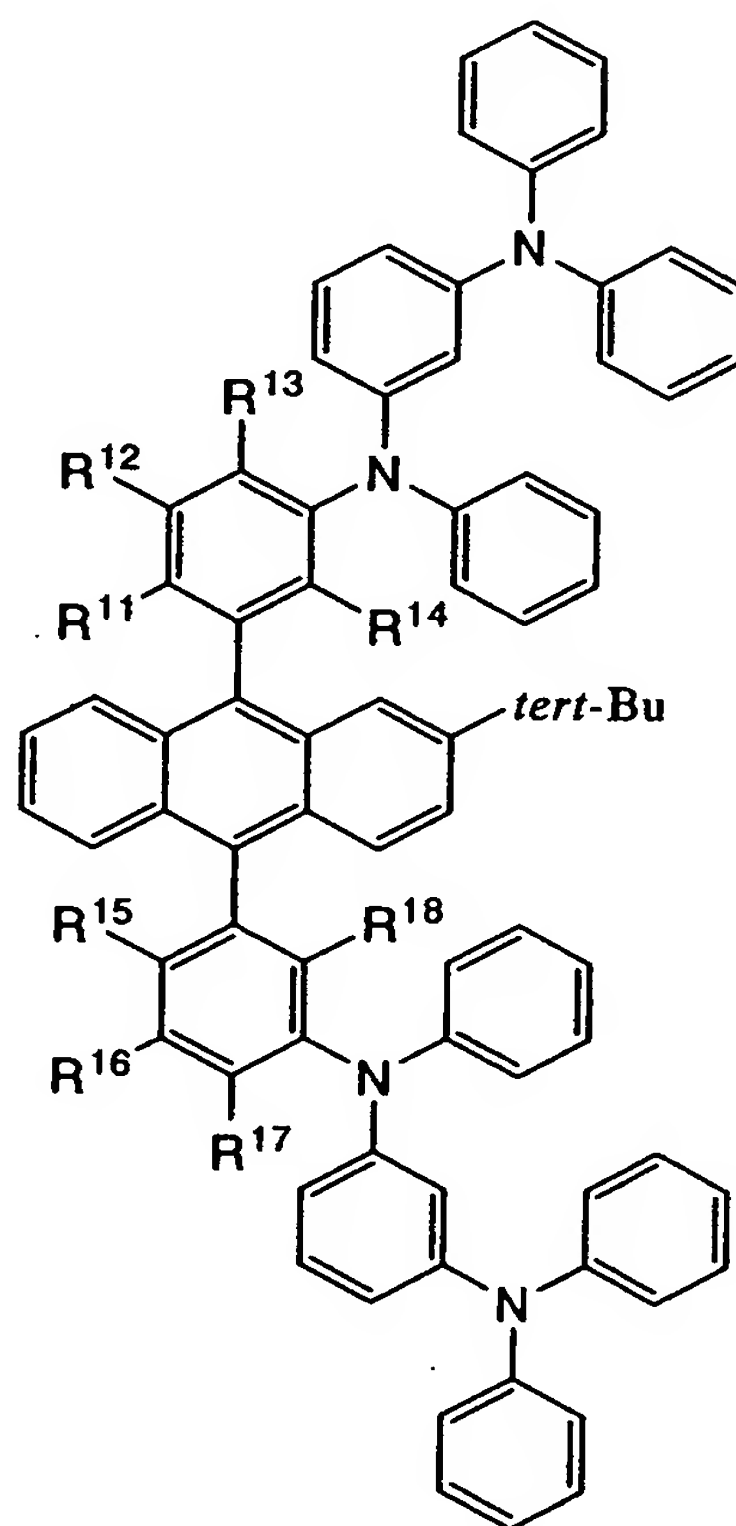
2. A light-emitting element comprising:

a first electrode and a second electrode,

a first layer and a second layer formed between the first electrode and the second electrode,

10 wherein the first layer contains an anthracene derivative represented by a general formula (2) and a substance that shows electron acceptability to the anthracene derivative,

wherein the second layer contains a light emitting substance,



(2)

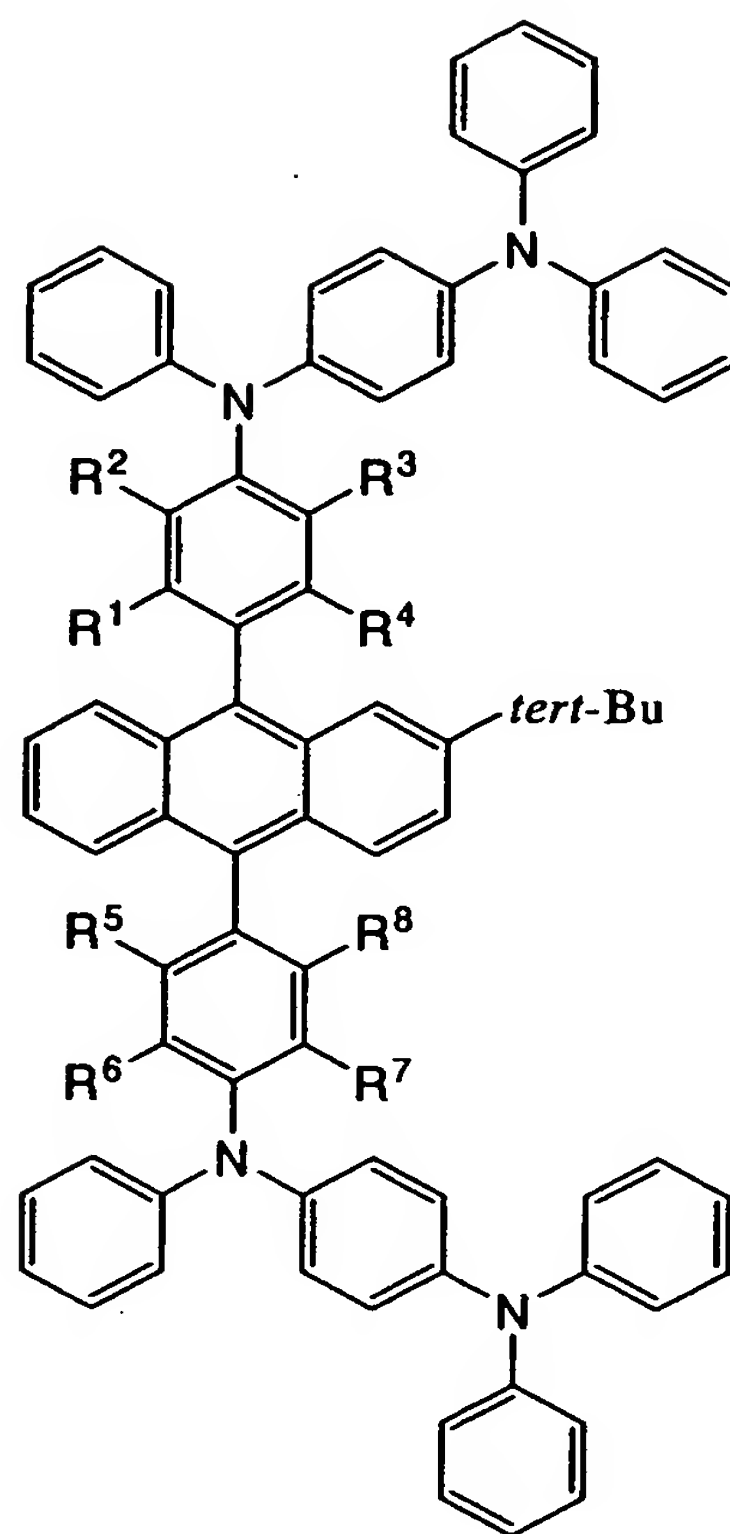
wherein  $R^{11}$  to  $R^{18}$  are individually any one of hydrogen and an alkyl group having 1 to 4 carbon atoms, or  $R^{11}$  and  $R^{12}$ ,  $R^{12}$  and  $R^{13}$ ,  $R^{15}$  and  $R^{16}$ , and  $R^{16}$  and  $R^{17}$  are individually bonded to form an aromatic ring,

wherein the bond of  $R^{11}$  and  $R^{12}$ , the bond of  $R^{12}$  and  $R^{13}$ , the bond of  $R^{15}$  and  $R^{16}$ , and the bond of  $R^{16}$  and  $R^{17}$  are independent of one another.

3. The light-emitting element according to claim 1, wherein the substance is at least one of metal oxide selected from molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide.

4. The light-emitting element according to claim 2, wherein the substance is at least one of metal oxide selected from molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide.

5. A light-emitting element comprising:  
a first electrode and a second electrode,  
a first layer, a second layer and a third layer formed between the first electrode and the second electrode,  
wherein the first layer contains an anthracene derivative represented by a general formula (1) and a first substance that shows electron acceptability to the anthracene derivative,  
wherein the second layer contains a light-emitting substance, and  
wherein the third layer contains a second substance having electron mobility of  $1 \times 10^{-6} \text{ cm}^2/\text{Vs}$  or more and a third substance that shows electron acceptability to the second substance,



(1)

wherein  $R^1$  to  $R^8$  are individually any one of hydrogen and an alkyl group having 1 to 4 carbon atoms, or  $R^1$  and  $R^2$ ,  $R^3$  and  $R^4$ ,  $R^5$  and  $R^6$ , and  $R^7$  and  $R^8$  are individually bonded to from an aromatic ring,

5 wherein the bond of  $R^1$  and  $R^2$ , the bond of  $R^3$  and  $R^4$ , the bond of  $R^5$  and  $R^6$ , and the bond of  $R^7$  and  $R^8$  are independent of one another.

6. A light-emitting element comprising:

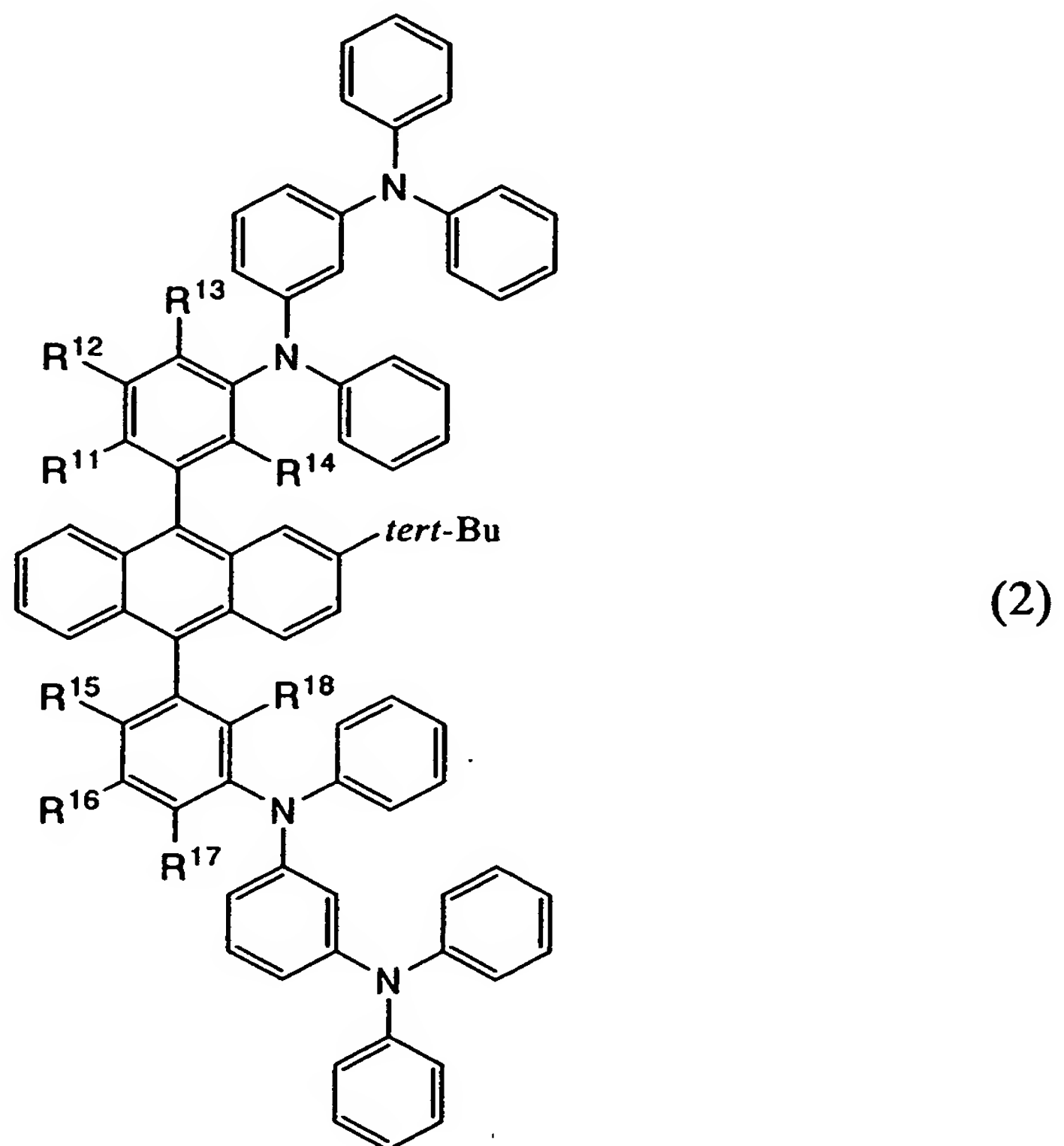
a first electrode and a second electrode,

10 a first layer, a second layer and a third layer formed between the first electrode and the second electrode,

wherein the first layer contains an anthracene derivative represented by a general formula (2) and a first substance that shows electron acceptability to the anthracene derivative,

15 wherein the second layer contains a light-emitting substance, and

5



wherein R<sup>11</sup> to R<sup>18</sup> are individually any one of hydrogen and an alkyl group having 1 to 4 carbon atoms, or R<sup>11</sup> and R<sup>12</sup>, R<sup>12</sup> and R<sup>13</sup>, R<sup>15</sup> and R<sup>16</sup>, and R<sup>16</sup> and R<sup>17</sup> are individually bonded to from an aromatic ring,

wherein the bond of  $R^{11}$  and  $R^{12}$ , the bond of  $R^{12}$  and  $R^{13}$ , the bond of  $R^{15}$  and  $R^{16}$ , and the bond of  $R^{16}$  and  $R^{17}$  are independent of one another.

7. The light-emitting element according to claim 5, wherein the first  
15 substance is at least one of substances selected from molybdenum oxide,

vanadium oxide, ruthenium oxide, and rhenium oxide, and wherein the third substance is at least one of substances selected from lithium oxide, calcium oxide, sodium oxide, potassium oxide, magnesium oxide, lithium fluoride, cesium fluoride, and calcium fluoride.

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8. The light-emitting element according to claim 6, wherein the first substance is at least one of substances selected from molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide, and wherein the third substance is at least one of substances selected from lithium oxide, calcium  
10 oxide, sodium oxide, potassium oxide, magnesium oxide, lithium fluoride, cesium fluoride, and calcium fluoride.

9. A light-emitting element comprising:

a first electrode and a second electrode,

15 a first layer, a second layer and a third layer formed between the first electrode and the second electrode,

wherein the first layer contains an anthracene derivative represented by a general formula (1) and a first substance that shows electron acceptability to the anthracene derivative,

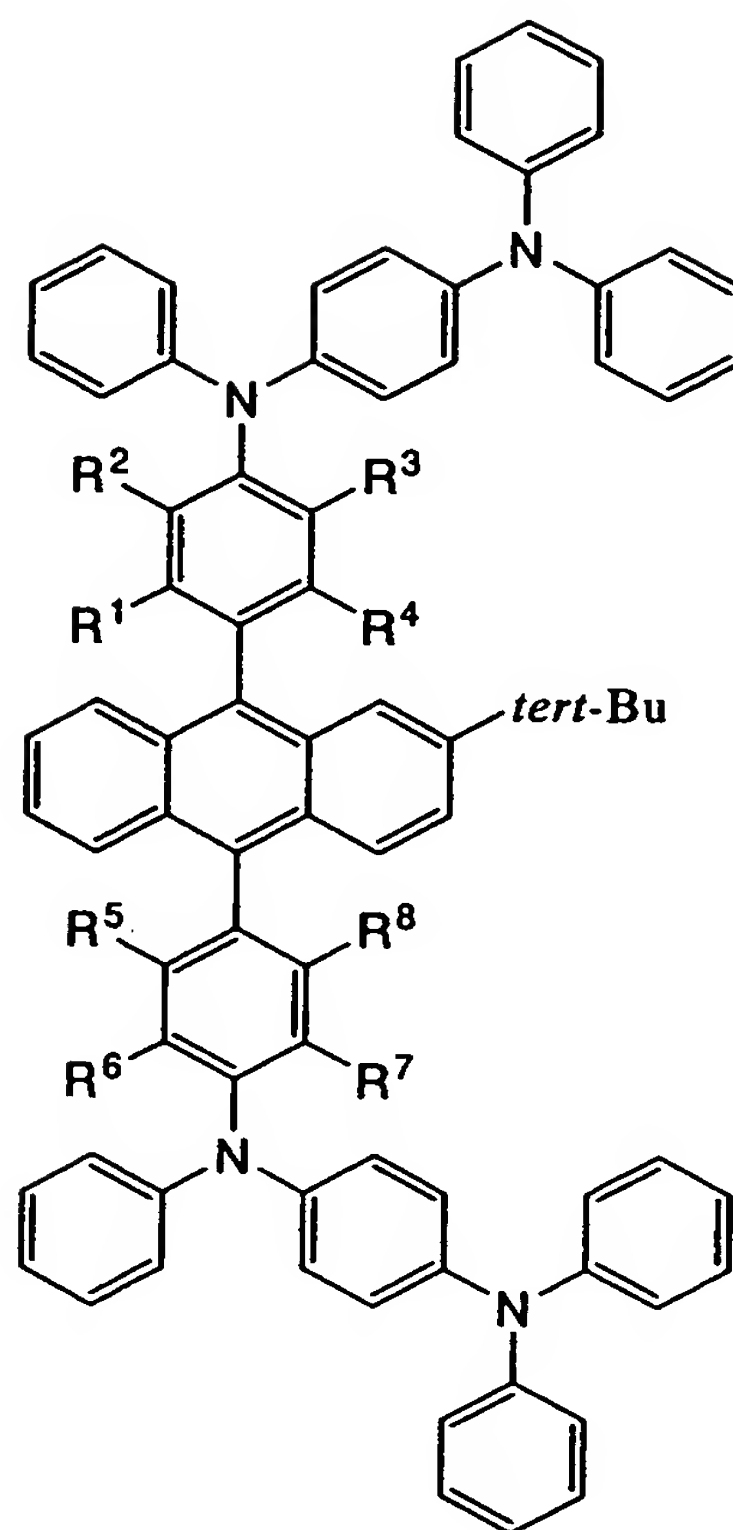
20 wherein the second layer contains a second substance having electron mobility of  $1 \times 10^{-6} \text{ cm}^2/\text{Vs}$  or more and a third substance that shows electron acceptability to the second substance,

wherein the third layer contains a light-emitting substance,

wherein the first layer is provided nearer the first electrode side than  
25 the second layer,

wherein the third layer is provided nearer the second electrode side than the second layer, and

wherein the second layer and the third layer emits light when a voltage is applied so that the potential of the first electrode gets lower than  
30 that of the second electrode,



(1)

wherein  $R^1$  to  $R^8$  are individually any one of hydrogen and an alkyl group having 1 to 4 carbon atoms, or  $R^1$  and  $R^2$ ,  $R^3$  and  $R^4$ ,  $R^5$  and  $R^6$ , and  $R^7$  and  $R^8$  are individually bonded to from an aromatic ring,

5 wherein the bond of  $R^1$  and  $R^2$ , the bond of  $R^3$  and  $R^4$ , the bond of  $R^5$  and  $R^6$ , and the bond of  $R^7$  and  $R^8$  are independent of one another.

10. A light-emitting element comprising:

a first electrode and a second electrode,

10 a first layer, a second layer and a third layer formed between the first electrode and the second electrode,

wherein the first layer contains an anthracene derivative represented by a general formula (2) and a first substance that shows electron acceptability to the anthracene derivative,

15 wherein the second layer contains a second substance having electron

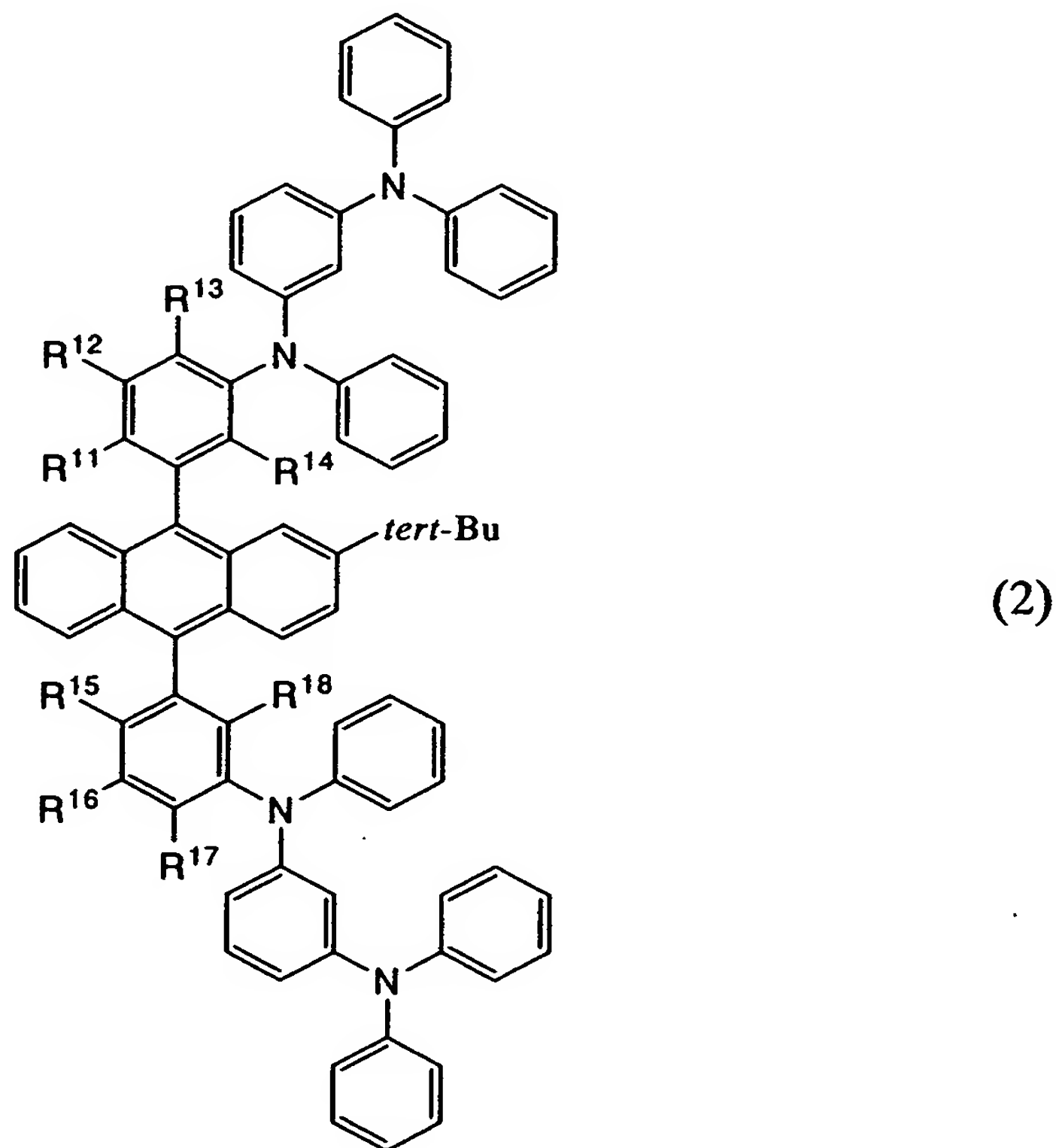
mobility of  $1 \times 10^{-6} \text{ cm}^2/\text{Vs}$  or more and a third substance that shows electron acceptability to the second substance,

wherein the third layer contains a light-emitting substance,

wherein the first layer is provided nearer the first electrode side than  
5 the second layer,

wherein the third layer is provided nearer the second electrode side than the second layer, and

wherein the second layer and the third layer emits light when a voltage is applied so that the potential of the first electrode gets lower than  
10 that of the second electrode,



wherein R<sup>11</sup> to R<sup>18</sup> are individually any one of hydrogen and an alkyl group having 1 to 4 carbon atoms, or R<sup>11</sup> and R<sup>12</sup>, R<sup>12</sup> and R<sup>13</sup>, R<sup>15</sup> and R<sup>16</sup>, and R<sup>16</sup> and R<sup>17</sup> are individually bonded to from an aromatic ring,

15 wherein the bond of R<sup>11</sup> and R<sup>12</sup>, the bond of R<sup>12</sup> and R<sup>13</sup>, the bond of



R<sup>15</sup> and R<sup>16</sup>, and the bond of R<sup>16</sup> and R<sup>17</sup> are independent of one another.

11. The light-emitting element according to claim 9, wherein the first substance is at least one of metal oxides selected from molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide, and wherein the third substance is at least one of substances selected from lithium oxide, calcium oxide, sodium oxide, potassium oxide, magnesium oxide, lithium fluoride, cesium fluoride, and calcium fluoride.

12. The light-emitting element according to claim 10, wherein the first substance is at least one of metal oxides selected from molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide, and wherein the third substance is at least one of substances selected from lithium oxide, calcium oxide, sodium oxide, potassium oxide, magnesium oxide, lithium fluoride, cesium fluoride, and calcium fluoride.

13. A light-emitting element comprising:  
a first electrode and a second electrode,  
a first layer, a second layer and a third layer formed between the first electrode and the second electrode,

wherein the first layer contains an anthracene derivative represented by a general formula (1) and a first substance that shows electron acceptability to the anthracene derivative,

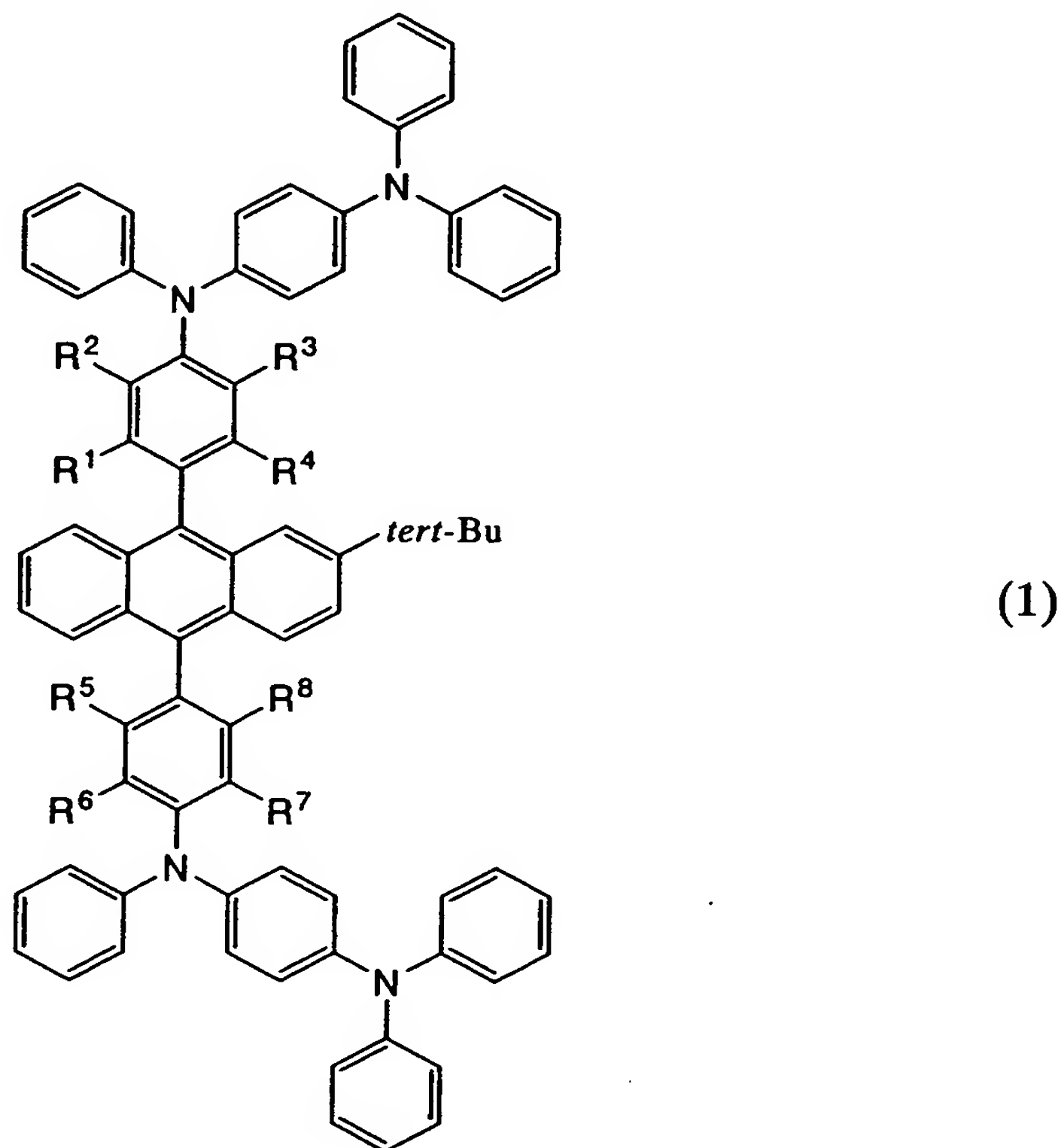
wherein the second layer contains a second substance having electron mobility of  $1 \times 10^{-6} \text{ cm}^2/\text{Vs}$  or more and a third substance that shows electron acceptability to the second substance,

wherein the third layer contains an electron-transporting layer, a light-emitting layer, a hole-transporting layer, and a hole-generating layer,

wherein the first layer is provided nearer the first electrode side than the second layer,

wherein the third layer is provided nearer the second electrode side than the second layer, and

wherein the second layer and the electron-transporting layer are in contact with each other,



wherein  $R^1$  to  $R^8$  are individually any one of hydrogen and an alkyl group having 1 to 4 carbon atoms, or  $R^1$  and  $R^2$ ,  $R^3$  and  $R^4$ ,  $R^5$  and  $R^6$ , and  $R^7$  and  $R^8$  are individually bonded to from an aromatic ring,

wherein the bond of  $R^1$  and  $R^2$ , the bond of  $R^3$  and  $R^4$ , the bond of  $R^5$  and  $R^6$ , and the bond of  $R^7$  and  $R^8$  are independent of one another.

14. A light-emitting element comprising:

a first electrode and a second electrode,

a first layer, a second layer and a third layer formed between the first electrode and the second electrode,

wherein the first layer contains an anthracene derivative represented by a general formula (2) and a first substance that shows electron acceptability to the anthracene derivative,

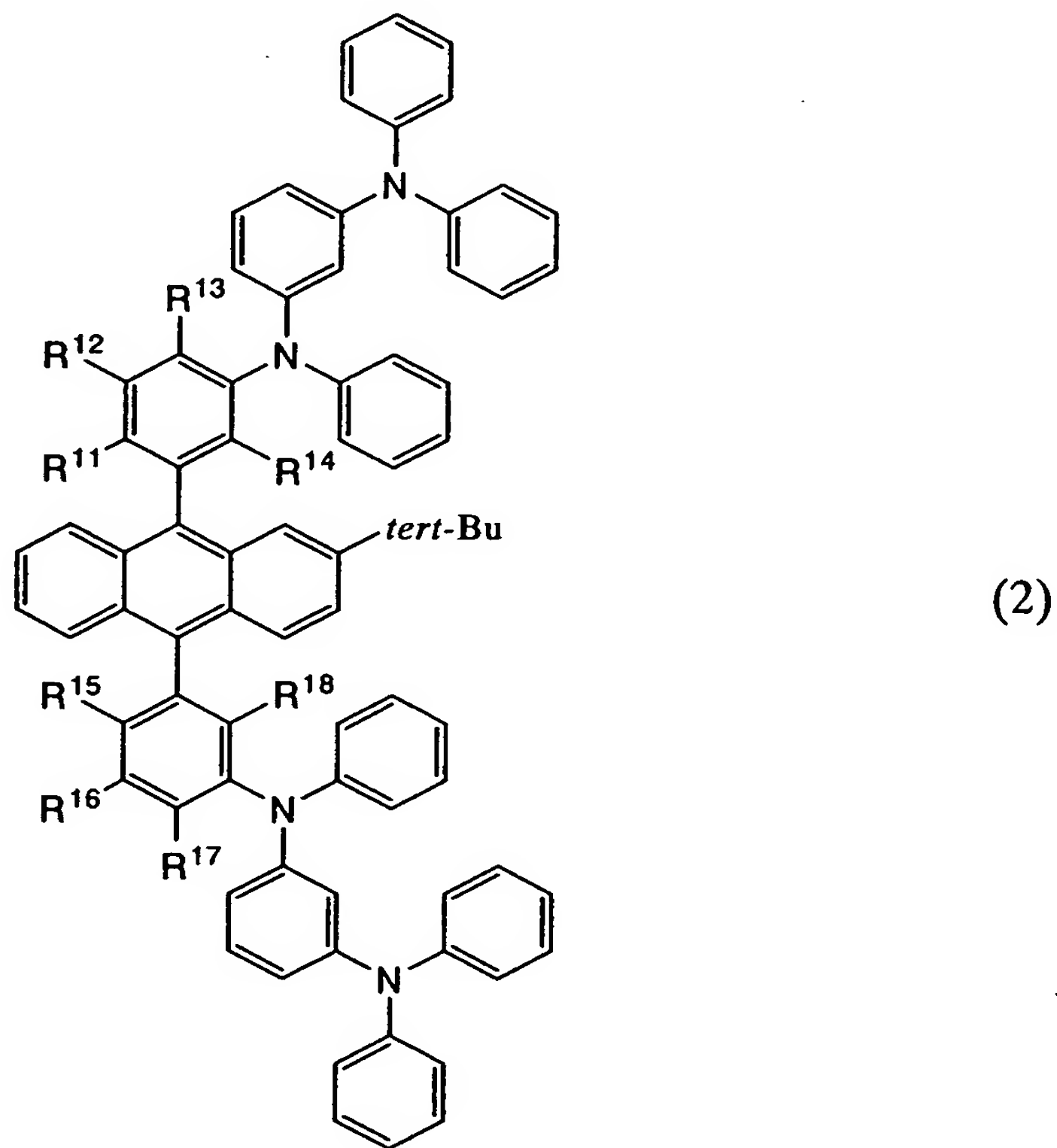
wherein the second layer contains a second substance having electron mobility of  $1 \times 10^{-6} \text{ cm}^2/\text{Vs}$  or more and a third substance that shows electron acceptability to the second substance,

wherein the third layer contains an electron-transporting layer, a light-emitting layer, a hole-transporting layer, and a hole-generating layer,

wherein the first layer is provided nearer the first electrode side than  
10 the second layer,

wherein the third layer is provided nearer the second electrode side than the second layer, and

wherein the second layer and the electron-transporting layer are in contact with each other,



wherein  $R^{11}$  to  $R^{18}$  are individually any one of hydrogen and an alkyl group having 1 to 4 carbon atoms, or  $R^{11}$  and  $R^{12}$ ,  $R^{12}$  and  $R^{13}$ ,  $R^{15}$  and  $R^{16}$ , and  $R^{16}$  and  $R^{17}$  are individually bonded to from an aromatic ring,

wherein the bond of  $R^{11}$  and  $R^{12}$ , the bond of  $R^{12}$  and  $R^{13}$ , the bond of  
5  $R^{15}$  and  $R^{16}$ , and the bond of  $R^{16}$  and  $R^{17}$  are independent of one another.

15. The light-emitting element according to claim 13, wherein the first substance is at least one of metal oxides selected from molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide, and wherein  
10 the third substance is at least one of substances selected from lithium oxide, calcium oxide, sodium oxide, potassium oxide, magnesium oxide, lithium fluoride, cesium fluoride, and calcium fluoride.

16. The light-emitting element according to claim 14, wherein the  
15 first substance is at least one of metal oxides selected from molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide, and wherein the third substance is at least one of substances selected from lithium oxide, calcium oxide, sodium oxide, potassium oxide, magnesium oxide, lithium fluoride, cesium fluoride, and calcium fluoride.

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17. The light-emitting device using a light-emitting element according to any one of claims 1 to 16 as a pixel or a light source.

18. The electronic device using a light-emitting element to any one of  
25 claims 1-16 as a display portion.